DOCUMENT RESUME

ED 358 943 PS 021 467

AUTHOR Schwartz-Kenney, Beth M.; Buford, Katherine B.
TITLE Effects of Misleading Postevent Information on Children's Memory.
PUB DATE Mar 93
NOTE 22p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (60th, New Orleans, LA, March 25-28, 1993).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Age Differences; *Cognitive Development; Individual Development; *Misconceptions; *Preschool Children; Preschool Education; *Recall (Psychology)

ABSTRACT

This study examined the influence of misleading information on children's memory of a real-life event. After participating in a play session, 10 three-year-old children and 10 six-year-old children heard a narrative that included inaccurate information about the play session. The children were then presented with items from the play session (event items), items from the narrative (suggested items), and novel items that were not present during the play session or narrative. Children were instructed to respond with a yes or no to indicate if they remembered seeing the item during the play session. Children's memories for control items were compared to their memories for misled items. Results illustrated that misinformation effects were dependent upon age group and type of measure used to assess memory impairment. Only younger children evidenced significantly poorer performance on misled event items compared to control event items. However, no significant effect due to item type emerged when measuring misinformation interference, a measure believed to eliminate bias. (MM)

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ED358943

Effects of Misleading Postevent Information on Children's Memory

Beth M. Schwartz-Kenney and Katherine B. Buford

Randolph-Macon Woman's College

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Poster presented at the biennial meeting of the Society for Research on Child Development, New Orleans, LA, March 1993

PS 021467

Abstract

We examined the influence of misleading information on children's memory for a real-life event. After participating in a play session, 3- and 6-year-old children heard a narrative that included inaccurate information about the play session. Using a yes/no task, we then assessed the influence of misinformation. Children's memories for control items were compared to their memories for misled items. Results illustrated that misinformation effects were dependent upon both age group and type of measure used to assess memory impairment. Only younger children evidenced significantly poorer performance on misled event items compared to control event items. However, no significant effect due to item type emerged when measuring misinformation interference, a measure believed to eliminate bias. Implications for existing memory impairment theories are discussed.

A child's ability to accurately recall a witnessed event has received a great deal of concern by the judicial system as well as experimental psychologists. Among this concern has been the question regarding the impact of postevent information on a child's memory for the witnessed event. Specifically, will a child's memory for the original event information be impaired if misleading postevent information is introduced? This concept of memory impairment is related to the much talked about concept of suggestibility, which concerns the degree to which one can change another person's memory or report about a witnessed event. As Ceci and Bruck (in press) note, "one issue related to the underlying mechanisms of suggestibility involves the extent to which erroneous postevent information interferes with the original memory" (pp. 17).

Past research on children's memory impairment has led to vast contradictions. These contradictions include whether impairment occurs at all, and if impairment does occur, if the impairment is age-dependent. Zaragoza (1987) and Zaragoza and Wilson (1989) have repeatedly examined memory impairment in young children ages 3 and 6 years of age, and have found no evidence for memory impairment. However,

using the same methodology, Ceci, Ross, and Toglia (1987) uncovered memory impairment that was age-dependent, in which 3-year-olds showed a greater degree of impairment compared to older children.

Due to these contradictions, the implications of this line of research on children's eyewitness accuracy is unclear. Furthermore, the research described above focused on children's memory for a story-book event rather than a real-life event, which would more closely reproduce an event that a child would likely testify about, and therefore fosters greater applicability to issues concerning children's eyewitness abilities.. For this reason, Schwartz-Kenney and Goodman (1991) examined children's memory impairment of a real-life event involving 6- and 9-year-olds. They found evidence for memory impairment, however they noted several factors that influenced whether impairment would result. These factors included the age of the child, the type of information addressed, and the type of test used to assess impairment.

The controversy that exists in the child impairment literature, is also present in the adult memory impairment research (Belli, 1989; Loftus, 1979; McCloskey & Zaragoza, 1985; Tversky & Tuchin, 1991).

However, in addition to contradictions in terms of the presence or absence of memory impairment, the adult literature delivers equally contrasting opinions concerning the type of test that adequately assesses memory impairment. A recent study by Belli establishes what the present authors believe to be an unbiased measure of memory impairment, which separates out the influence of social compliance versus memory impairment. These alternative measures of misinformation interference and misinformation acceptance have yet to be used to assess memory impairment in young children (but see Schwartz-Kenney & Goodman, 1991). Using these measures with children, one can examine separately the intrusion of suggested items in children's reports versus the suppression of children's memory for original information.

The present study attempted to further examine the influence of misinformation on children's memory using a real-life event like that of Schwartz-Kenney and Goodman (1991), using the age groups employed by Zaragoza and Wilson (1989) and Ceci et al. (1987), and using the measurement techniques introduced by Belli (1989). This allowed the present investigators to examine memory impairment in young children, provided

greater applicability to issues of eyewitness testimony, and applied a measure of children's memory impairment that lacks the biases believed to be inherent in the alternative testing procedures used in past child memory impairment research.

Does misleading postevent information impair children's memory for a real-life event? We examined this question in an experimental study in which children participated in a play session with a research assistant for approximately 15-20 minutes. Specifically, 10 3-year-olds and 10 6-year-olds individually engaged in a play session during which they played with playdoh, drew a connect-the-dots picture, put together a puzzle, and performed several coordination tasks such as jumping and hoping.

Following the play session, children were escorted into another room in which they heard a narrative. They were told that someone would be asking them questions about what they did and saw during the play session, and to help them remember the event the experimenter would go over what happened. Within the narrative that followed, several pieces of inaccurate information were included (see Appendix). Next, the child was introduced to another research assistant who

performed the interview. The interview consisted of a yes/no task in which the child was presented with one item at a time and was then and asked to respond "yes" if the item was something they remembered seeing during the play session, or "no" if it is something they did not remembered seeing during the play session. Subjects were presented with items from the play session (event items), items from the narrative (suggested items), and novel items that were not present during the play session or part of the narrative (see Table 1). Use of the yes/no task allowed us to measure both misinformation interference and misinformation acceptance. Finally, the child was praised for his/her performance, the experimenter explained the purpose of the visit, and the child received a small toy in appreciation of his/her participation.

The influence of misleading postevent information on children's performance was examined using a 2 (age) X 2 (item group: control vs. misled) ANOVA, with item group varying within-subjects. First we analyzed the proportion of correct responses to control event items versus misled event items to determine if the misleading postevent information suppressed children's

memory for event details (see Table 1). A significant age group X item group interaction emerged, $F(1, 18) = 5.85$, $p < .05$. Simple effects tests revealed that performance on misled event items was significantly different across age groups. Specifically, older children recognized misled event items, $M = .98$, significantly better than younger children, $M = .82$. Additional simple effects examining only younger children's performance revealed a significant difference due to item group. Notably, younger children's performance on misled event items, $M = .82$, was significantly lower than their performance on control event items, $M = .98$, $F(1, 10) = 5.71$, $p < .05$. No significant main effects were found.

An additional analysis examined misinformation interference. This measure combines performance on event items and novel items. Therefore, this analysis compared performance on control event and novel items combined versus misled event and novel items combined (see Table 1). This combination, as Belli (1989) explains, cancels out the influence of response bias and lack of encoding and therefore measures only the impact of the misleading information on memory for the original information. Using this comparison, a

significant main effect of age emerged, $F(1, 18) = 6.34$, $p < .05$. Specifically, younger children's overall performance, $M = .84$, was significantly lower than older children's performance, $M = .98$. No other significant main effects or interactions emerged. Notably, no significant difference was found comparing item groups.

Next, three sets of analyses were conducted to examine how successfully subjects rejected incorrect items. First, we measured misinformation acceptance by examining children's performance on control novel items versus misled novel items (see Table 1). Belli (1989) used this comparison to assess children's degree of acceptance of inaccurate information across item group. No significant main effects or interactions emerged, all F's $(1, 18) \leq 4.01$.

An additional analysis compared children's performance on control novel items versus suggested items. This comparison, originally introduced by Tversky and Tuchin (1991) allows for an additional measure of social compliance, comparing children's ability to reject incorrect control novel items versus their ability to reject incorrect suggested items presented during the narrative. A significant age

group X item group interaction resulted, $F(1, 18) = 5.00$, $p < .05$. Simple effects tests revealed no significant differences, however a comparison of children's performance on only control items did approach significance, $F(1, 18) = 4.16$, $p = .056$. Older children correctly rejected control novel items, $M = .97$, more often than younger children, $M = .70$.

A final analysis examined children's responses to misled novel items versus suggested items, a comparison used by Tversky & Tuchin (1989) to determine if subjects could reject suggested items as well as misled novel items (see Table 1). Once again a significant age group X item group interaction emerged, $F(1, 18) = 4.56$, $p < .05$. However, simple effects analyses revealed no significant main effects. Looking at Figure 1, this significant interaction was likely due to the difference in accuracy across age groups, with younger children's performance, $M = .86$, lower than older children's performance, $M = .94$.

Does misleading information impair a child's memory for information witnessed during a real-life event? And, how do the results from the present study compare to Zaragoza and Wilson's (1989) findings and Ceci et al.'s (1987) results? Examining children's

performance on event items only, the present results replicate Ceci et al.'s findings that misleading postevent information impairs memory, but that impairment is age-dependent. In the present investigation, a difference between control and misled event items emerged only for younger children. Older children's memories were not impaired by the misleading information. However, as Belli points out, and as McCloskey and Zaragoza (1985) have argued, this difference between item groups does not necessarily indicate that memory impairment is present. These authors point out that these misinformation effects could have been caused by response bias, from which a difference between control and misled items would emerge regardless of memory impairment. However, measuring misinformation interference eliminates this alternative explanation. When measuring misinformation interference, misinformation effects were not found for either age group. This last findings replicates the results found by Zaragoza and Wilson. These contrasting findings indicate that the emergence of misinformation effects is dependent upon factors other than the presentation of misleading postevent information. In this case, changing the type of test

used to assess memory impairment led to contrasting results.

What do these results indicate in terms of the theories that have been proposed to account for misinformation effects, or lack of misinformation effects? The overwriting theory states that the original information is overwritten by subsequent information and therefore no longer available for subsequent retrieval. Results from the present study contrast this first theory. If the original information was overwritten by the postevent information, a significant difference in item group would have emerged when measuring misinformation interference. Unfortunately results from the present study cannot differentiate between the alternative theories. Misinformation effects did emerge for 3-year-olds when examining only the event items, however, this difference in item group could be due to memory impairment or simply social compliance. In other words, the accurate memories were still intact, but the children could have agreed with the experimenter and responded negatively to the event items that they actually remembered seeing. Of course, it is possible that the postevent information did impair retrieval of

the original information. Results from the present study cannot isolate the cause of this misinformation effect. Therefore, results from this first comparison leaves two alternative theories: 1) the no-impairment theory, which states that postevent information does not impair memory for the original event, and 2) the coexistence theory, which states that the original information exists in memory along with the postevent information, and the presence of the postevent information reduces the retrievability of the original information.

Results using Belli's (1989) measure of misinformation interference, indicates that children were as capable of recognizing misled information as they were at recognizing control information. These results are consistent with the no-impairment theory or the coexistence theory. Proponents of the no-impairment theory would state that misinformation effects did not emerge because the postevent information did not impair the memory for the original information. However, proponents of the coexistence theory would believe that the presence of the postevent information in memory did not reduce the retrievability of the original information for this specific task.

In terms of the developmental difference that resulted when comparing event items, several researchers have postulated possible causes for this difference. First, if in fact this difference is due to a change in memory, it is possible that the younger children possess a weaker memory trace for the information, and therefore are more susceptible to the influence of postevent information (Ceci, Toglia, & Ross, 1988). Ceci and Bruck (in press) also note that a weaker memory is more likely to incorporate additional information, making it more difficult to distinguish between the original information and the suggested information. This trace strength theory therefore proposes that any factor decreasing strength of the original memory, leaves the original information more vulnerable to impairment. In the present research, analyses addressing the issue of social compliance or acceptance of misinformation illustrated no significant differences across items and therefore does not present any clear support for the concept of memory item confusion.

In conclusion, many questions remain unanswered with regards to the influence of misleading postevent information on children's memory. An important

finding, consistent with that found by Schwartz-Kenney and Goodman (1991) is that the presence of misinformation effects is dependent upon the type of assessment test used. Therefore, in addition to the strength of the information, the age of the child (Ceci et al., 1988), and the type of information (Lindberg, 1991; Schwartz-Kenney & Goodman, 1991), the type of test used also determines whether misinformation effects, and therefore whether memory impairment will emerge. Importantly, as stated above, the interpretation of the emerging misinformation effects in the present study is not straightforward. Future research needs to clarify the source of the misinformation effects found for the 3-year-olds in the present investigation.

References

Belli, R. F. (1989). Influences of misleading information: Misinformation interference and acceptance. Journal of Experimental Psychology: General, 118, 72-85.

Ceci, S. J., and Bruck, M. (in press). The suggestibility of the child witness: A historical review and synthesis. Psychological Bulletin.

Ceci, S. J., Ross, D. F., & Toglia, M. P. (1987). Suggestibility of children's memory: Psycholegal implications. Journal of Experimental Psychology: General, 116, 38-49.

Ceci, S. J., Toglia, M. P., & Ross, D. F. (1988). On remembering...more or less: A trace strength interpretation of developmental differences in suggestibility. Journal of Experimental Psychology: General, 117, 201, 203.

Lindberg, M. (1991). A taxonomy of suggestibility and eyewitness memory: Age, memory process, and focus of analysis. In J. L. Doris (Ed.). The suggestibility of children's recollections. Washington, D. C.: American Psychological Association.

Loftus, E. F, (1975). Leading questions and the eyewitness report. Cognitive Psychology, 7, 560-572.

Loftus, E. F. (1979). Eyewitness testimony. Cambridge, MA: Harvard University Press.

McCloskey, M., & Zaragoza, M. S. (1985). Misleading postevent information and memory for events: Arguments and evidence against memory impairment hypothesis. Journal of Experimental Psychology: General, 114, 1-16.

Schwartz-Kenney, B. M. and Goodman, G. S. (April, 1991). The effects of misleading information on children's memory for a real-life event. Paper presented at the biannual meeting of the Society for Research on Child Development, New Orleans, LA.

Tversky, B., & Tuchin, M. (1989). A reconciliation of the evidence on eyewitness testimony: Comments on McCloskey and Zaragoza (1985). Journal of Experimental Psychology: General, 118, 86-91.

Zaragoza, M. S., & Wilson, D. (1989, April). Suggestibility of the child witness. In G. S. Goodman (Chair), Do children provide accurate reports?: Social policy and research

implications. Symposium presented at the Society for Research in Child Development Meeting, Kansas City, MO.

Zaragoza, M. S. (1987). Memory, suggestibility and eyewitness testimony in children and adults. In S. J. Ceci, M. P. Toglia, & D. F. Ross (Eds.) Children's eyewitness memory (pp. 53-78). NY: Springer-Verlag.

Appendix

First, (RA's name) opened the door. She showed you the big Gumby and asked if you wanted to shake his hand. Then you played with Playdoh. To make sure you have enough room on the desk, (RA's name) moved the (apple, banana, orange, fruit) to the corner of the desk. (RA's name) then asked if you could name the shape of her (circle, star, triangle) pin she was wearing. Next, (RA's name) brought out the connect-the-dots picture and found a (fork, spoon, knife, piece of silverware) in the folder. You drew the (frog, fish, cat, connect-the-dots) and then you put together a puzzle. Next you did some balancing tricks. (RA's name) asked you to hop on one foot, then the other foot, and then jump with both feet. You were very good at that. Then you sat back down and (RA's name) hid a small ball under some cups, and you guessed what cup the ball was under. You were really good at that too. There were a lot of things on the desk where you played like some books. Then you said good-bye to (RA's name) and you left the Gumby room.

Table 1

Examples of Item Category Instantiations For Each Item Group

	Item Category		
	Event	Suggested	Novel
Item Group			
Control	banana[a]	-------	orange[d], apple[d]
Misled	red shirt[b]	green shirt[c]	blue shirt[e]

Note. Comparison of a versus b measures memory for control and misled event items. Comparison of a and d combined versus b and e combined measures misinformation interference. Comparison of d versus c measures rejection of control novel items and suggested items. Comparison of c versus e measures rejection of suggested items versus misled novel items. Comparison of d versus e measures misinformation acceptance.

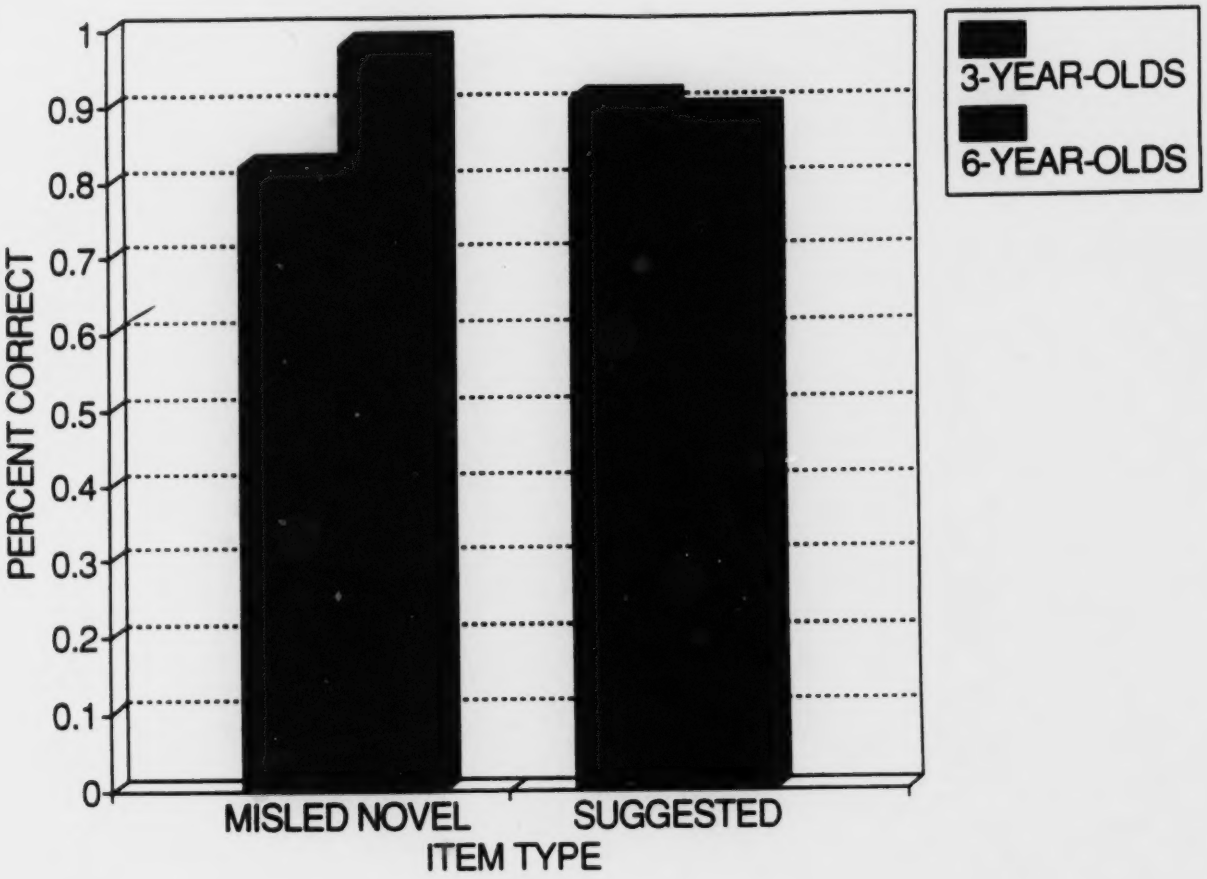

Figure 1. Mean proportion of correct responses as a function of item type and age group.